

REMARKS

Claims 1, 3-6, 8, 10, 14, 16-18, and 20-23 have been amended, and claims 7 and 11-13 have been canceled without prejudice. New dependent claims 27-28 have been added. Written description support for these amendments is found throughout the original specification, for example, at page 7, line 22 to page 9, line 9; at page 10, line 1 to page 11, line 2; at page 15, line 5 to page 19, line 12; and at FIGS. 1-3, 6, and 8A-8B. No new matter has been added. Applicant respectfully submits that all pending claims 1-6, 8-10, and 14-28 are in condition for allowance.

Claims 1-6, 8-10, and 14-28

Independent claim 1 and particular dependent claims were rejected under 35 U.S.C. § 103 as being unpatentable over Neubardt in view of Calancie and in further view of Katims. Applicant respectfully submits that even if there was an articulated reason that would have prompted a skilled artisan to combine these references as proposed in the Office Action (an issue that is not conceded herein), the proposed combination would nevertheless fail to achieve the method set forth in amended claim 1.

First, unlike claim 1, none of Neubardt, Calancie, or Katims discloses the operation of “**determining an onset neuro-muscular response to the application of said electrical stimulus to said first aspect of said bone by automatically increasing said electrical stimulus in constant increments until said onset neuro-muscular response is detected by one or more of the EMG sensor electrodes outputting an EMG signal having an amplitude value greater than a predetermined value.**” Indeed, the Office Action does not contend that Neubardt or Katims provides such a teaching. Instead, the Office Action relies upon the Calancie reference for a purported disclosure of determining the onset neuro-muscular response. (*See* Office Action at pp. 3-4.) Applicant respectfully submits that the Calancie reference fails to disclose the claimed operation.

Instead, the Calancie reference teaches that “a constant current stimulation” device is preferably used for applying a stimulation signal to the spine. (*See* Calancie at p. 2785.) In particular, Calancie suggests that a stimulus level of “7 mA” should be employed as the “searching intensity” when probing the pedicle bone. (*See* Calancie at pp. 2781 and 2784.) Even where it might be inferred that Calancie teaches increasing the electrical stimulus current

beyond the constant 7mA signal (*see* Calancie at p. 2782, col. 1 (indicating that the absolute threshold was determined to a maximum of 40mA for an implanted screw)), nothing in Calancie discloses that the electrical stimulus should be increased “in constant increments until said onset neuro-muscular response is detected” (as recited in claim 1). Furthermore, Calancie discloses that the electrophysiologist waits for and evaluates an “EMG response” (p. 2781-82), but Calancie does not teach that the “neuro-muscular response is detected by one or more of the EMG sensor electrodes outputting an EMG signal having an amplitude value greater than a predetermined value.” For at least these reasons, the proposed combination of Neubardt, Calancie, and Katims would fail to achieve all elements of the method recited in claim 1.

Second, unlike claim 1, none of Neubardt, Calancie, or Katims discloses the operation of “displaying on a display device of said neurophysiology system that is viewable by a surgeon operating on the patient's spine an onset electrical stimulus current level which causes said onset neuro-muscular response.” Clearly, Neubardt and Katims do not disclose any such display device that is viewable by the surgeon while displaying a particular electrical current level (especially an electrical current level which causes an onset neuro-muscular response). Calancie teaches that the electrical stimulation level is known by an “electrophysiologist,” who may in turn instruct or “guide” the surgeon to move an instrument to a particular location. (*See* Calancie at p. 2782.) The Calancie reference, however, does not disclose that a displayed device is viewable by the surgeon, and certainly does not disclose that a display device is viewable by the surgeon while displaying the onset electrical stimulus current level (as defined in claim 1). For at least these reasons, the proposed combination of Neubardt, Calancie, and Katims would fail to achieve all elements of the method recited in claim 1.

Accordingly, the subject matter of claim 1 is patentable over Neubardt, Calancie, Katims, and all other references cited in the record. Dependent claims 2-6, 8-10, and 14-28 are patentable for at least the same reasons as claim 1 and for the additional inventive combinations described therein.

Request for Reconsideration

Applicant submits that claims 1-6, 8-10, and 14-28 are patentable over the prior art of record. Reconsideration and allowance is respectfully requested.

Applicant :
Serial No. : 10/830,189
Filed : April 21, 2004
Page : 8 of 8

Attorney's Docket No.: 13958-0070001

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the claim amendments herein do not signify concession of unpatentability of claims 1, 3-6, 7, 8, 10-14, 16-18, and 20-23 prior to the amendments herein. Applicant hereby specifically reserves the right to prosecute the previously presented subject matter of claims 1, 3-6, 7, 8, 10-14, 16-18, and 20-23 (prior to the amendment herein) in a continuation application. Applicant hereby specifically reserves the right to prosecute claims of different or broader scope in a continuation application. The Patent Office should infer no (i) adoption of a position with respect to patentability, (ii) change in the Applicant's position with respect to any claim or subject matter of the invention, or (iii) acquiescence in any way to any position taken by the Office Action, based on amendments made herein.

This submission is accompanied by a Request for Continued Examination and the required fee. No other fee is believed due. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: November 13, 2009

/Michael T. Hawkins/
Michael T. Hawkins
Reg. No. 57,867

Fish & Richardson P.C.
3200 RBC Plaza
60 South Sixth Street
Minneapolis, Minnesota 55402
Telephone: (612) 335-5070
Facsimile: (877) 769-7945